506logcover111901.doc
Created on 11/8/2001 4:27 PM
Last saved by pskidmore

1 6. LOG COVER - [MODERATE]

1.1 Introduction

1.1.1 Description of Technique

This is one or more logs laid on the bank and crossing over a side scour pool as cover and flood refuge or a log buried in the bank cantilevered into the channel. It may also be a log or complex of logs placed in backwatered pools, seasonally flooded areas, and off channel ponds and wetlands

For rearing and holding habitats.

This technique describes wood being placed to provide cover to fish and other aquatic life, entrain or "waylay" other mobile woody debris in bigger flow stages, act as nurse trees for developing woody and other vegetation in the immediate riparian edge, and store and contribute to nutrient entry into the channel. This technique may be viewed as an interim treatment to provide these functions and structure while natural rates of woody debris recruitment through riparian forest regeneration develops. (wood decays). Consider riparian vegetation and management (see technique 5.13) to provide a long-term source of large woody material to the stream and to provide an alternate type of near-bank cover.

1.1.2 Physical and Biological Effects

Cover Habitat to escape from predators and high velocities. Discuss fish and wildlife species (and age class of fish species) that benefit as well as their seasonal use of the wood cover.

If placed so as to have moderate to high influence on channel hydraulics, stability, and sediment and nutrient storage (see technique, 5.5, 5.7, 5.8, and 5.9), logs will also influence pool depth, abundance, and complexity, habitat diversity, and spawning gravel quality and deposition.

1.1.3 Application of Technique

- Where in channel is this technique best applied?--Pools and Glides along low velocity channel margins, backeddies, and side channels; backwatered pools, reaches with excessive riffle proportion compared to reference reaches.
- Transport vs. Depositional Stream Reaches
- Stream Power and Cover Log Size
- Physically stable streams with adequate fish habitat—cover is the limiting factor. Channel stabilization and energy dissipation functions should be considered before fish habitat is

provided.

- Groundwater dominated vs. surface water dominated.
- Backwatered vs. free-flowing reaches.
- For use in newly constructed or existing stream channels, side channels, and seasonally flooded areas.

1.2 Scale

- Small Creeks vs. Rivers. Describe river continuum theory as it relates to wood—where wood naturally accumulates, types of configuration formed, and function provided by wood in steep headwater streams vs moderate gradient vs large low gradient rivers.
- What types of professionals need to be consulted?

1.3 Risk and Uncertainty

- Urban Environments
- Wildland Environments
- Large vs. small streams
- High gradient vs. low gradient stream reaches
- Confined vs. unconfined stream reaches

1.4 Data Collection and Assessment

- Hydrology
- Fluvial Geomorphic Assessment and History
- Watershed Processes and History
- Riparian Area Tree Size Potential
- Stream Power
- Available Wood Material Size and Quantity
- Fish Habitat Assessment
- Fish Population Assessment/ Habitat Utilization Assessment (i.e., what fish and age classes are in the system and would benefit from this technique—is there a biological need?)

1.5 Methods and Design

506logcover111901.doc
Created on 11/8/2001 4:27 PM
Last saved by pskidmore

- Identify wood placement sites. What locations will provide the most biological benefit?
- Benefits and disadvantages of wood complexes vs. single pieces
- Stability at High Flows (including placement strategies, sizes, and artificial anchoring techniques)
- What are the benefits and limitations of anchoring techniques, and when are they recommended?
- Understand Historic and Continuing Natural Processes and
- Available Sources of Large and fine (small diameter) Wood
- Matching Natural Process With Woody Debris Quality, Quantity, Size, and Design
- Wood type (e.g., species, importance of fine woody material—branches and roots—as well as large)
- Potential unintended impacts (e.g., bed and bank scour). What wood configurations or channel conditions are most likely to cause them?
-
- Hydrology and Hydraulics
- Drawings and Reports

1.6 Project Implementation

1.6.1 Permitting

- Project Volumes (Cut and Fill), Construction Design, Construction Methods
- Construct Drawings, Plan Views and Maps
- Sediment Control Plan
- Heavy Equipment Fueling Areas and Spill Plan
- Access Area Rehabilitation Plans

1.6.2 Construction

- Fish Species Work Window and Construction Timing
- Equipment Access Areas
- Equipment Size and Type (include hand labor equipment as well, such as winches)
- Materials
- Logging Methods
- Contract specs., experienced oversight

1.6.3 Cost Estimation

506logcover111901.doc
Created on 11/8/2001 4:27 PM
Last saved by pskidmore

- West Fork of the Hood River

1.6.4 Monitoring and Tracking

Monitoring methods recommended depends of what you're trying to learn. Potential questions include: did the wood move?, did the structure collect new wood?, did the treatment affect overall fish production in the system?, does the wood provide favorable fish habitat (what fish, season, and age class)? Depending on the objective and in addition to general monitoring recommendations made in Section 5.x.x, monitoring may include:

- Wood Tagging
- Large Woody Debris Survey
- Photo Points

1.6.5 Contracting Considerations

- Time and Materials vs. Construction Contracting
- Contractor Experience
- Construction oversight by experienced practioners
- Surety and performance bonds

1.7 Operations and Maintenance

- Relative to monitoring and objectives.

1.8 Examples

- West Fork of the Hood River
- East side examples.(contact Bob Steele, Perry Harvester?)

1.9 References

References cited in this technique so it is a stand-alone pullout.

1.10 Photo and Drawing File Names

List filenames and file locations of any photos and drawing files associated with this technique